

Amendment To The Claims

1. (Previously Presented) A method of using a computer for managing risk in a market related to a commodity delivered over a network, comprising the steps of:
 - using a computer for modeling locational prices of the commodity in the market as a linear combination of congestion prices for congestible lines in the network; and
 - using a computer for producing a combination of price risk instruments for the market in a proportion such that an effect of the congestion prices for the congestible lines on the locational prices of the commodity is reduced.
2. (Original) The method according to claim 1, wherein the step of producing the combination of price risk instruments includes producing the combination in a proportion such that the effect of the congestion prices for the congestible lines on the locational prices of the commodity is eliminated.
3. (Previously Presented) The method according to claim 2, wherein the step of producing the combination includes selecting a portfolio y of price risk instruments, such that:
$$z' \mathbf{A} - y' \mathbf{P}' \mathbf{A} = 0,$$
where \mathbf{A} represents distribution factors describing the physics of power flows in the network, \mathbf{P} represents the available market of price instruments, and z represents a market participant's underlying position in the market at a prospective time T , and wherein the portfolio includes a set of positions and primes denote transpositions.
4. (Canceled)

5. (Withdrawn) A method of using a computer for evaluating a portfolio of price risk instruments in a market related to a commodity delivered over a network, comprising the steps of:

using a computer for estimating a plurality of distribution factors indicating effects on one or more congestible lines in the network due to transfers of the commodity at respective locations in the network; and

using a computer for evaluating the portfolio based on the estimated distribution factors.

6. (Withdrawn) The method of claim 5, wherein the step of evaluating the portfolio includes the step of calculating a cost f based on the formula $f = (\mathbf{z}'\mathbf{A} - \mathbf{y}'\mathbf{P}'\mathbf{A})\lambda + \mathbf{y}'\mathbf{F}$, wherein:

\mathbf{y} represents the portfolio of price risk instruments;

\mathbf{z} represents underlying positions in the market at the prospective time;

\mathbf{P} represents a market of available price risk instruments;

\mathbf{F} represents prices for the available price risk instruments;

\mathbf{A} represents the distribution factors;

λ represents prices of congestion for the congestible lines; and

primes denote transpositions.

7. (Withdrawn) A method of using a computer for hedging a set of underlying positions at a prospective time in a market related to a commodity delivered over a network, comprising the steps of:

using a computer for estimating a plurality of distribution factors indicating effects on one or more congestible lines in the network due to transfers of the commodity at respective locations in the network; and

using a computer for producing a portfolio of price risk instruments for the market based on the estimated distribution factors.

8. (Withdrawn) The method for hedging according to claim 7, wherein the step of producing the portfolio includes the step of eliminating an effect of congestion prices for congestible lines on prices of the commodity at respective locations in the network.

9. (Withdrawn) The method according to claim 7, wherein the step of producing the portfolio includes selecting a portfolio y of price risk instruments, such that $z'A - y'P'A = 0$, where A represents the distribution factors, P represents the available market of price instruments, and z represents the underlying position and primes denote transpositions.

10. (Canceled)

11. (Withdrawn) A method of using a computer for identifying arbitrage opportunities among a plurality of available price risk instruments in a market related to a commodity delivered over a network, comprising the step of:

using a computer for estimating a plurality of distribution factors indicating effects on one or more congestible lines in the network due to transfers of the commodity at respective locations in the network; and

using a computer for producing a portfolio of price risk instruments from among the available price risk instruments based on the estimated distribution factors, wherein a number of the price risk instruments is greater than a number of the one or more congestible lines.

12. (Withdrawn) The method according to claim 11, wherein the step of producing the portfolio includes selecting a portfolio y of price risk instruments, such that $y'P'A = 0$, where A represents the distribution factors, and P represents the available market of price instruments and primes denote transpositions.

13. (Canceled)

14. (Withdrawn) A method of identifying arbitrage opportunities among a plurality of available price risk instruments in a market related to a commodity delivered over a network using a computer, comprising the step of:

using a computer for modeling locational prices of the commodity in the market as a linear

combination of congestion prices for congestible lines in the network; and

using a computer for producing a portfolio of price risk instruments from among the

available price risk instruments in a proportion such that an effect of the congestion

prices for the congestible lines on the locational prices of the commodity is eliminated,

wherein a number of the price risk instruments is greater than a number of the one or

more congestible lines.

15. (Withdrawn) The method according to claim 14, wherein the step of producing the portfolio includes selecting a portfolio y of price risk instruments, such that $y'P'A = 0$, where A represents the linear combination, and P represents the available market of price instruments and primes denote transpositions.

16. (Canceled)

17. (Original) A computer-readable medium bearing instructions for managing risk in a market related to a commodity delivered over a network, said instructions being arranged to cause one or more processors upon execution thereby to perform the steps of:

modeling locational prices of the commodity in the market as a linear combination of

congestion prices for congestible lines in the network; and

producing a combination of price risk instruments for the market in a proportion such that an effect of the congestion prices for the congestible lines on the locational prices of the commodity is reduced.

18. (Withdrawn) A computer-readable medium bearing instructions for evaluating a portfolio of price risk instruments in a market related to a commodity delivered over a network, said instructions being arranged to cause one or more processors upon execution thereby to perform the steps of:

estimating a plurality of distribution factors indicating effects on one or more congestible lines in the network due to transfers of the commodity at respective locations in the network; and

evaluating the portfolio based on the estimated distribution factors.

19. (Currently Amended) A portfolio generating system and portfolio comprising:
a computer-based system configured to generate a portfolio having a plurality of price risk instruments;

the portfolio comprising:

the a plurality of price risk instruments for a market related to a commodity delivered over a network,

wherein the price risk instruments y are proportioned such that $z'A - y'P'A = 0$,

A represents distribution factors describing the physics of power flows in the network,

P represents the available market of price instruments,

z represents a market participant's underlying position in the market at a prospective time T ,
and

primes denote transpositions.

20. (Currently Amended) The portfolio generating system of claim 19, wherein a number of the price risk instruments is greater than a number of the at least some congestible lines.